

R<sup>2</sup> is halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio;

X is nitrogen or CR<sup>14</sup>, where R<sup>14</sup> is hydrogen or, together with R<sup>3</sup>, forms a 3-membered or 4-membered alkylene or alkenylene chain, in each of which a methylene group is replaced by oxygen;

R<sup>3</sup> is halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio or R<sup>3</sup> is linked to R<sup>14</sup> as stated above to form a 5-membered or 6-membered ring;

R<sup>4</sup> is phenyl or naphthyl which may be substituted by one or more, in particular one to three, of the following radicals: halogen, nitro, cyano, hydroxyl, mercapto, amino, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkylthio, C<sub>1</sub>-C<sub>4</sub>-alkylamino, di-C<sub>1</sub>-C<sub>4</sub>-alkylamino, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyl or C<sub>1</sub>-C<sub>4</sub>-alkoxy-carbonyl;

*W B*  
a five-membered or six-membered heteroaromatic structure which contains one to three nitrogen atoms and/or one sulfur or oxygen atom and may carry one or more of the following radicals: halogen, nitro, cyano, hydroxyl, mercapto, amino, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkylthio, C<sub>1</sub>-C<sub>4</sub>-alkylamino, C<sub>1</sub>-C<sub>4</sub>-dialkylamino, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl or phenyl;

R<sup>5</sup> is hydrogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxyalkyl, C<sub>1</sub>-C<sub>4</sub>-alkylthioalkyl or phenyl;

R<sup>6</sup> is C<sub>1</sub>-C<sub>8</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl or C<sub>3</sub>-C<sub>8</sub>-cycloalkyl, it being possible for these radicals to be mono- or polysubstituted in each case by: halogen, nitro, cyano, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>3</sub>-C<sub>6</sub>-alkenyloxy, C<sub>3</sub>-C<sub>6</sub>-alkynyoxy, C<sub>1</sub>-C<sub>4</sub>-alkylthio, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkyl-amino, di-C<sub>1</sub>-C<sub>4</sub>-alkylamino, phenyl or phenyl or phenoxy which is mono- or polysubstituted, for example mono- to trisubstituted, by halogen, nitro, cyano, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio;

Y is sulfur or oxygen or a single bond; and

2 is sulfur or oxygen;

with the proviso that  $R^6$  is not unsubstituted  $C_1$ - $C_4$ -alkyl when  $R^4$  is unsubstituted phenyl, 2 is oxygen and simultaneously  $R^5$  is methyl or hydrogen.

16. A 3-(het)arylcrylic acid derivative of the general formula I as claimed in claim 15, where R is

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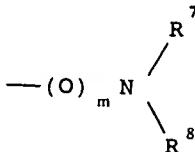
where  $\text{R}^1$  has the following meanings:

- a) hydrogen;
- b) a succinylimidoxy group;
- c) a 5-membered heteroaromatic structure which is bonded via a nitrogen atom, contains two or three nitrogen atoms and may carry one or two halogen atoms or one or two of the following radicals:

$C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkoxy or  $C_1$ - $C_4$ -alkylthio;

- d) a radical

T401X



where  $m$  is 0 or 1 and  $\text{R}^7$  and  $\text{R}^8$ , which may be identical or different, have the following meanings:

hydrogen;

$C_1$ - $C_8$ -alkyl,  $C_3$ - $C_6$ -alkenyl,  $C_3$ - $C_6$ -alkynyl or  $C_3$ - $C_8$ -cycloalkyl, where each of these radicals may carry one to five halogen atoms or one or two of the following groups:  $C_1$ - $C_4$ -alkoxy,  $C_3$ - $C_6$ -alkenyloxy,  $C_3$ - $C_6$ -alkynyoxy,  $C_1$ - $C_4$ -alkylthio,  $C_3$ - $C_6$ -alkenylthio,  $C_3$ - $C_6$ -alkynylthio,  $C_1$ - $C_4$ -haloalkoxy,  $C_1$ - $C_4$ -alkylcarbonyl,  $C_3$ - $C_6$ -alkenylcarbonyl,  $C_3$ - $C_6$ -alkynylcarbonyl,  $C_1$ - $C_4$ -alkoxycarbonyl,  $C_3$ - $C_6$ -alkenyloxcarbonyl,  $C_3$ - $C_6$ -alkynylloxycarbonyl,

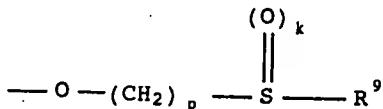
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di- $C_1$ - $C_4$ -alkylamino,  $C_3$ - $C_8$ -cycloalkyl, phenyl or phenyl which is monosubstituted or polysubstituted by halogen, nitro, cyano,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkoxy or  $C_1$ - $C_4$ -alkylthio;

phenyl which may be substituted by one or more of the following radicals: halogen, nitro, cyano,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkoxy or  $C_1$ - $C_4$ -alkylthio;

*Wavy line*  
R<sup>7</sup> and R<sup>8</sup> together form a cyclic, optionally substituted  $C_4$ - $C_7$ -alkylene chain or together form a cyclic, optionally substituted  $C_3$ - $C_6$ -alkylene chain containing a hetero-atom selected from the group consisting of oxygen, sulfur and nitrogen;

e)  $R^1$  is furthermore a group



where R<sup>9</sup> is  $C_1$ - $C_4$ -alkyl, phenyl or phenyl which is monosubstituted or polysubstituted by halogen, nitro, cyano,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkoxy or  $C_1$ - $C_4$ -alkylthio, or  $C_1$ - $C_4$ -haloalkyl,  $C_3$ - $C_6$ -alkenyl or  $C_3$ - $C_6$ -alkynyl, p may be 1, 2, 3 or 4 and k may be 0, 1 or 2;

*5/20/91*  
f) a radical OR<sup>10</sup>, where R<sup>10</sup> is:

i) hydrogen, an alkali metal cation, one equivalent of an alkaline earth metal cation, the ammonium cation or an organic ammonium ion;

ii)  $C_3$ - $C_8$ -cycloalkyl which may carry one to three  $C_1$ - $C_4$ -alkyl radicals;

iii)  $C_1$ - $C_8$ -alkyl which may carry one to five halogen atoms or one of the following radicals:

*5/20/91*  
 $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -alkylthio, cyano,  $C_1$ - $C_4$ -alkylcarbonyl,  $C_3$ - $C_8$ -cycloalkyl,  $C_1$ - $C_4$ -alkoxycarbonyl, phenyl, phenoxy or phenylcarbonyl, where the aromatic radicals in turn may each carry one to five halogen atoms or one to three of the following radicals: nitro, cyano,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -alkoxy,  $C_1$ - $C_4$ -haloalkoxy *[sic]* or  $C_1$ - $C_4$ -alkylthio;

iv)  $C_1-C_8$ -alkyl which may carry one to five halogen atoms and carries one of the following radicals: a 5-membered heteroaromatic structure containing one to three nitrogen atoms or a 5-membered heteroaromatic structure containing one nitrogen atom and one oxygen or sulfur atom, which may carry one to four halogen atoms or one or two of the following radicals: nitro, cyano,  $C_1-C_4$ -alkyl,  $C_1-C_4$ -haloalkyl,  $C_1-C_4$ -alkoxy,  $C_1-C_4$ -haloalkoxy or  $C_1-C_4$ -alkylthio;

v)  $C_2-C_6$ -alkyl which carries one of the following radicals in the 2 position:  $C_1-C_4$ -alkoxyimino,  $C_3-C_6$ -alkenyloxyimino,  $C_3-C_6$ -haloalkenyloxyimino or benzylxyimino;

vi)  $C_3-C_6$ -alkenyl or  $C_3-C_6$ -alkynyl, where these groups in turn may carry one to five halogen atoms;

vii) phenyl which may carry one to five halogen atoms or one to three of the following radicals: nitro, cyano,  $C_1-C_4$ -alkyl,  $C_1-C_4$ -haloalkyl,  $C_1-C_4$ -alkoxy,  $C_1-C_4$ -haloalkoxy or  $C_1-C_4$ -alkylthio;

viii) a 5-membered heteroaromatic structure which has bonded via a nitrogen atom, contains one to three nitrogen atoms and may carry one or two halogen atoms or one or two of the following radicals: nitro, cyano,  $C_1-C_4$ -alkyl,  $C_1-C_4$ -haloalkyl,  $C_1-C_4$ -alkoxy,  $C_1-C_4$ -haloalkoxy or  $C_1-C_4$ -alkylthio;

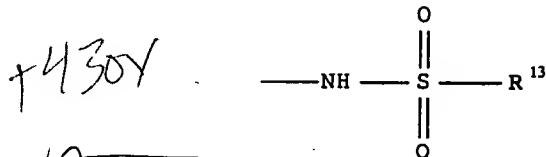
1420X ix)  $R^{10}$  is furthermore a group  $\text{---N}=\text{C}(\text{---})^2$  where  $R^{11}$  and  $R^{12}$ , may be identical or different and are each:

$C_1-C_8$ -alkyl,  $C_3-C_6$ -alkenyl,  $C_3-C_6$ -alkynyl or  $C_3-C_8$ -cycloalkyl, where these radicals may carry one  $C_1-C_4$ -alkoxy or  $C_1-C_4$ -alkylthio or one phenyl radical;

phenyl which may be substituted by one or more of the following radicals:

halogen, nitro, cyano,  $C_1-C_4$ -alkyl,  $C_1-C_4$ -haloalkyl,  $C_1-C_4$ -alkoxy,  $C_1-C_4$ -haloalkoxy or  $C_1-C_4$ -alkylthio;

or  $R^{11}$  and  $R^{12}$  together form a  $C_3-C_{12}$ -alkylene chain which may carry one to three  $C_1-C_4$ -alkyl groups;

g) or R<sup>1</sup> forms a radicalwhere R<sup>13</sup> is:

*1430Y*  
 C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl or C<sub>3</sub>-C<sub>8</sub>-cycloalkyl, where these radicals may carry one C<sub>1</sub>-C<sub>4</sub>-alkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio or one phenyl radical;

phenyl which may be substituted by one to five halogen atoms or one to three of the following radicals: nitro, cyano, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio.

*3* 16. A 3-arylcarboxylic acid derivative of the formula I as claimed in claim 15, in which R<sup>4</sup> is phenyl which may be substituted as stated in claim 15, and the remaining substituents have the meanings stated in claim 15.

*4* 16. A 3-arylcarboxylic acid derivative of the formula I as claimed in claim 15, in which Z is oxygen, R<sup>4</sup> is phenyl which may be substituted as stated in claim 15, R<sup>5</sup> is methyl, X is CH, R<sup>2</sup> and R<sup>3</sup> are each methoxy and Y, R<sup>1</sup> and R<sup>6</sup> have the meanings stated in claim 15.

*5* 16. A 3-hetarylcarboxylic acid derivative of the formula I as claimed in claim 15, in which R<sup>4</sup> is a five- or six-membered heteroaromatic structure as claimed in claim 15 and the remaining substituents have the meanings stated in claim 15.

*6* 16. A 3-hetarylcarboxylic acid derivative of the formula I as claimed in claim 15, in which Z is oxygen, R<sup>4</sup> is a five- or six-membered heteroaromatic structure as claimed in claim 15, R<sup>5</sup> is methyl, X is CH, R<sup>2</sup> and R<sup>3</sup> are methoxy and Y, R<sup>1</sup> and R<sup>6</sup> have the meanings stated in claim 15.

*7* 16. A herbicide containing a compound of the formula I as claimed in claim 15 and conventional inert additives.

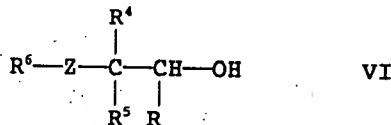
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8/2. A method for controlling undesirable plant growth, wherein a herbicidal amount of a compound of the formula I as claimed in claim 15 is allowed to act on the plants or on their habitat.

9/3. An agent for influencing plant growth, containing a compound of the formula I as claimed in claim 15 and conventional inert additives.

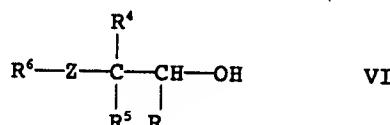
10/4. A method for regulating plant growth, wherein a bioregulatory amount of a compound of the formula I as claimed in claim 15 is allowed to act on the plants or on their habitat.

11/5. A 3-(het)arylcarboxylic acid derivative of the formula VI

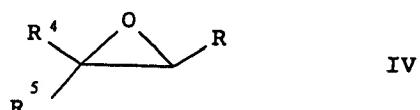


where  $\text{R}$ ,  $\text{R}^4$ ,  $\text{R}^5$ ,  $\text{R}^6$  and  $\text{Z}$  have the meanings stated in claim 15, with the proviso that  $\text{R}^6$  is not unsubstituted alkyl when  $\text{R}^4$  is unsubstituted phenyl or 4-isobutylphenyl,  $\text{Z}$  is oxygen and  $\text{R}^5$  is simultaneously methyl or hydrogen.

12/6. A process for the preparation of a 3-(het)arylcarboxylic acid derivative of the formula VI



wherein an epoxide of the formula IV



where  $\text{R}$ ,  $\text{R}^4$  and  $\text{R}^5$  have the meanings stated in claim 15, is reacted with a compound of the formula V

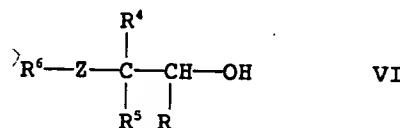
R<sup>6</sup>-ZH

V

where R<sup>6</sup> and Z have the meanings stated in claim 15, with the proviso that R<sup>6</sup> is not unsubstituted alkyl when R<sup>4</sup> is unsubstituted phenyl or 4-isobutylphenyl, Z is oxygen and R<sup>5</sup> is simultaneously methyl or hydrogen, if required in an inert solvent or with the addition of a suitable catalyst.

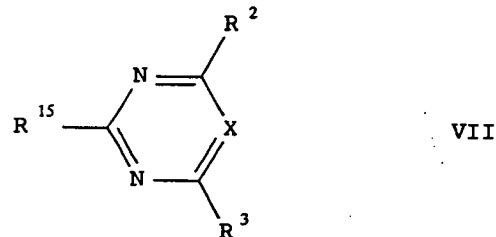
1421. A process for the preparation of 3-(het)arylcarboxylic acid derivatives of the formula I as claimed in claim 15, where Y is oxygen wherein the 3-het(aryl)carboxylic acid derivative of the formula VI

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where the substituents have the meanings stated in claim 15, is reacted with a pyrimidyl or triazinyl derivative of the formula VII

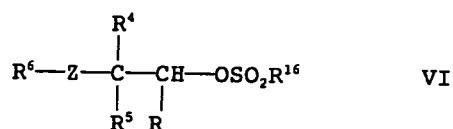
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where R<sup>15</sup> is halogen or R<sup>16</sup>SO<sub>2</sub>- and R<sup>16</sup> is C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl or phenyl, in an inert solvent in the presence of a base.

1422. A process for the preparation of a 3-het(aryl)carboxylic acid derivative of the formula I as claimed in claim 15, where Y is sulfur, wherein a 3-het(aryl)carboxylic acid derivative of the formula VIII

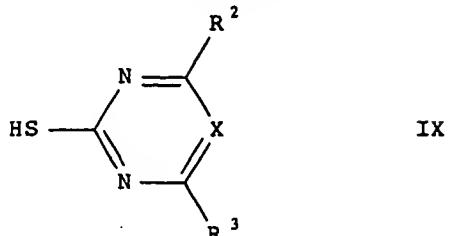
T452X



where the substituents have the meanings stated in claim 16, is

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reacted with a pyrimidyl- or triazinylthiol of the formula IX



*Ins C1* > where R<sup>2</sup>, R<sup>3</sup> and X have the meanings stated in claim 15. *Ins C1*

REMARKS

Claims 15-28 remain in this application.

The applicants have amended the application with respect to Arrangement of Specification.

A new set of claims have been submitted in order to clarify the claims and the pages on which they are presented.

The examiner is requested to reconsider the rejection of claim 9 as being a duplicate of claim 7. The claims are clearly not duplicates in a literal sense, and the fact that they each can be seen to cover the same active ingredient and possibly (but not necessarily) the same conventional additives does not make them duplicates. One claim relates to a herbicidal composition and the other is directed to an agent for influencing plant growth. A certain latitude is given the applicants to present claims which reflect that which the applicants regard as their invention. (See *In re Wakefield et al.*, 164 USPQ 636). Favorable reconsideration is solicited.

The examiner is requested to reconsider the rejection of the claims under 35 USC 112, second paragraph, in view of the foregoing amendment. Claim 1 as amended is now consistent with the disclosure at page 1 of the specification. Favorable reconsideration is solicited.